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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/687,812	10/20/2003	Shinji Nakagawa	056208.52852US	2443

23911 7590 03/08/2005

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EXAMINER

TRAN, BINH Q

ART UNIT	PAPER NUMBER
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3748

DATE MAILED: 03/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/687,812	Applicant(s) NAKAGAWA ET AL.	
	Examiner BINH Q. TRAN	Art Unit 3748	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1,2,7 and 8 is/are rejected.
- 7) ☒ Claim(s) 3-6,9-10 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>03/05/2005</u> . | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

Claims 1-2 are rejected under 35 U.S.C. 102 (b) as being anticipated by Kolmanovsky et al. (Kolmanovsky) (Patent Number 6,347,512).

Regarding claim 1, Kolmanovsky discloses a engine control system for a combustion engine (20), comprising: a NOx trap catalyst (34) provided in the exhaust pipe of said engine to trap NOx by absorption or storage in an oxidation atmosphere and emit NOx in a reduction atmosphere (e.g. See col. 2, lines 39-48); a NOx sensor (38) located in the downstream of said NOx trap catalyst (34) to detect NOx components in exhaust; a NOx trap catalyst model for estimating a NOx amount trapped in said NOx trap catalyst (e.g. See col. 2, lines 62-67; col. 3, lines 1-67; col. 4, lines 1-26); and a device (10) that controls the operating condition of said engine based on outputs of said NOx trap catalyst model and said NOx sensor (34) (e.g. See col. 2, lines 62-67; col. 3, lines 1-67; col. 4, lines 1-26).

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Regarding claim 2, Kolmanovsky further discloses that the NOx trap catalyst model estimates a NOx amount trapped in said NOx trap catalyst and a NOx amount in the downstream of said NOx trap catalyst based on exhaust components and an air flow rate (e.g. See col. 2, lines 62-67; col. 3, lines 1-67; col. 4, lines 1-26).

Claims 1-2, and 7-8 are rejected under 35 U.S.C. 102 (b) as being anticipated by Itou et al. (Itou) (Patent Number 6,167,695).

Regarding claim 1, Itou discloses a engine control system for a combustion engine (10), comprising: a NOx trap catalyst (22) provided in the exhaust pipe of said engine to trap NOx by absorption or storage in an oxidation atmosphere and emit NOx in a reduction atmosphere (e.g. See col. 4, lines 30-48); a NOx sensor (24) located in the downstream of said NOx trap catalyst (22) to detect NOx components in exhaust; a NOx trap catalyst model (26) for estimating a NOx amount trapped in said NOx trap catalyst (e.g. See col. 5, lines 9-67; col. 6, lines 1-67; col. 7, lines 1-56); and a device (26) that controls the operating condition of said engine based on outputs of said NOx trap catalyst model and said NOx sensor (24) (e.g. See col. 5, lines 9-67; col. 6, lines 1-67; col. 7, lines 1-56).

Regarding claim 2, Itou further discloses that the NOx trap catalyst model estimates a NOx amount trapped in said NOx trap catalyst and a NOx amount in the downstream of said NOx trap catalyst based on exhaust components and an air flow rate (e.g. See col. 5, lines 9-67; col. 6, lines 1-67; col. 7, lines 1-56).

Regarding claim 7, Itou further discloses a rich spike control is started when the NOx trap amount in said NOx trap catalyst, which is computed by said NOx trap catalyst model, or the

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output of said NOx sensor exceeds a specified value (e.g. See col. 5, lines 9-67; col. 6, lines 1-67; col. 7, lines 1-56).

Regarding claim 8, Itou further discloses that the rich amount or rich time required for said rich spike is determined based on the NOx trap amount in said NOx trap catalyst estimated by said NOx trap catalyst model (e.g. See col. 5, lines 9-67; col. 6, lines 1-67; col. 7, lines 1-56).

Allowable Subject Matter

Claims 3-6 and 9-10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Since allowable subject matter has been indicated, applicant is encouraged to submit formal drawings in response to this Office action. The early submission of formal drawings will permit the Office to review the drawings for acceptability and to resolve any informalities remaining therein before the application is passed to issue. This will avoid possible delays in the issue process.

Prior Art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure and consists of five patents:

Ament et al. (Patent Number 6422003), Maaseidvaag et al. (Patent Number 6,167,696); Hertzberg (Patent Number 6460328), Cullen et al. (Patent Number 5894725), and Pischinger et al. (Patent Number 5771686) all disclose an exhaust gas purification for use with an internal combustion engine.

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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Binh Tran whose telephone number is (571) 272-4865. The examiner can normally be reached on Monday-Friday from 8:30 a.m. to 5:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas E. Denion, can be reach on (571) 272-4859. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and for After Final communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

BT
March 05, 2005



Binh Q. Tran
Patent Examiner
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